APPENDIX

Introduction

The G-5 foreign exchange market intervention program has given more immediacy to economic and policy issues involved in a drop in the dollar on foreign exchange markets. Some drop in the dollar is of course necessary and desirable. It provides a source of stimulus to the economy that may be needed as other forces work to slow economic expansion, and it is integral to correction over time of sectoral imbalances in the economy and of our unsustainably large deficit on goods and services in the balance of payments.

But one cannot rule out the risk that a desirable fall in the dollar could be transformed by an expectational flight from the dollar into a much sharper and faster drop than may be consistent with reasonably orderly economic adjustments. That has not appeared to happen yet, and confidence in the dollar has been rather well maintained. Thus far, it appears to be mainly official holders which have reduced their preference for dollars--with G-5 countries alone selling $8 billion since the inception of the program to date.

In this presentation we hope to clarify the economic and monetary policy issues raised by the potential for a weakening dollar, and in particular the nature of the problems and policy options should the dollar drop very sharply. We have divided the presentation into four sections. Mr. Hooper will first outline two contours of exchange rate adjustment--gradual and very rapid--and the associated likely adjustments in our balance of payments and to a degree in foreign countries. Mr. Stockton will then lay out the associated real adjustments that will need to be made in the U.S. economy. Such adjustments will occur over

time involving interest rate and price changes and Mr. Slifman will analyze the dynamics. Finally, I will attempt to assess the issues involved in some of the policy options.

Peter Hooper
November 1, 1985

As shown by the red line in the top panel of the first exhibit, the dollar has fallen about 20 percent on average against the major foreign currencies, to a level slightly below where it was in mid-1984 after peaking in February this year. About one third of the 20 percent decline this year has taken place since the G-5 statement in late September.

Over much of the period since 1973, changes in the dollar's spot exchange value have been fairly closely associated with movements in the relative real rates of return on financial investments in the United States and abroad. U.S. long-term real interest rates rose sharply relative to foreign rates between 1979 and 1982, as indicated by the black line in the top panel, contributing significantly to the dollar's rise during that period. More recently, the decline in U.S. interest rates relative to foreign rates undoubtedly has contributed to the dollar's weakening since early this year. However, during some periods the dollar has moved independently of the real interest rate differential. Most notably, the dollar's strengthening between 1982 and 1984 was attributed largely to other factors, often referred to as safe-haven factors.

In the bottom panel of the chart are three hypothetical paths of the dollar for the next five years. In the top dashed line the dollar is unchanged at its October average level. This path is given mainly as a point of reference. The next line shows a gradual depreciation of the dollar (at about a 5 percent annual rate). This path extrapolates through 1990 the staff's near-term projection of the dollar.

One should also consider the possibility of an abrupt, adverse shift in sentiment concerning dollar-denominated investments. The dollar's declines both since February and after the G-5 statement indicate how much exchange rates can change in a relatively brief period. Moreover, the dollar's rise during 1982-84, relative to an essentially flat real interest differential, suggests at least the potential for large movements in exchange rates resulting from changes in confidence and other developments affecting markets that are not readily identifiable or predictable. Should market forces turn strongly against the dollar, it could fall a long way in a short time, particularly in an environment where the market is wary that the underlying trend may be downward. It could even fall below a level that eventually would be consistent with a zero current account balance before investors became willing to continue to finance the U.S. external deficits that would persist for at least a while. As an example of a rapid depreciation, the lower path shown in the Chart extrapolates over the next year and a half the dollar's rate of depreciation since February. Under this scenario the dollar would fall another 40 percent to a point somewhat below its low point in 1980, and then begin to rise again gradually.

Chart 2 shows the implications of these alternative paths of the dollar for the U.S. trade balance and the current account balance. If the dollar remained at its current level and GNP growth at home and abroad remained in the 2-1/2 to 3 percent range, the current account deficit would begin to widen again after the near-term effects of the recent dollar depreciation were played out while the trade deficit would remain about unchanged. However, with a gradual depreciation of the

dollar, both deficits would narrow steadily through the projection horizon. In the case of the rapid depreciation, the current account could return to zero balance and move slightly into surplus within about three years. If the extrapolated gradual depreciation were carried beyond 1990 (the last point plotted on the chart) the current account would reach zero balance within another four to five years.

The next table shows the cumulative effects of the alternative current account paths on the U.S. net international investment position. According to official statistics, the United States became a net debtor earlier this year, for the first time since World War I. If the dollar remains unchanged over the next five years, we estimate that by 1990 the U.S. net debt position would reach something on the order of $700 billion, which is suggestive of an increasingly fragile position for the dollar. By way of comparison, this level of debt would be about seven times as large as Brazil's current net debt, though when expressed as a percentage of GNP, only one-fourth as large as Brazil's. If the dollar falls, less debt will be accumulated. But even so, by 1990, with a moderate depreciation the debt would accumulate to $550 billion, and with a rapid depreciation it would accumulate to $200 billion.

A rapid depreciation of the dollar and a sharp reduction of the U.S. current account deficit implies major adjustments in the current account positions of other countries. In the top half of Exhibit 4, the black bars show average current account positions from 1980 to 1982 for major regions of the world, and the red bars show estimates for 1985. While the U.S. position declined from about a zero balance to a large deficit, the position of other industrial countries rose from a sizable deficit to a sizeable surplus. Among developing

countries, the ten major borrowing countries were forced by external borrowing constraints to reduce their large deficits between these two periods. Other developing countries as a group incurred larger deficits, substantially due to the reduction in surpluses of the oil-exporting countries.

Developing countries as a group probably would not be able to absorb more than a moderate portion of the U.S. deficit. Countries already heavily in debt would have difficulty financing substantially larger deficits. A sharp drop in the dollar could place significant pressure on some of these countries at least in the near term. To the extent that U.S. interest rates rose, the major borrowing countries would be facing higher net interest payments on their debt -- as shown at the bottom of the exhibit, about $2 1/2 billion per year for every 1 percentage point rise in dollar interest rates. Over time, however, the rise in dollar prices would tend to reduce the real value of their debt. For other developing countries a rapid drop in the dollar would be more manageable. Based on historical experience, a fall in the dollar would tend to raise the dollar prices of developing country exports more than the prices of their imports. The situation would be much more serious, however, if the general level of demand in industrial countries fell, which could significantly depress the export revenues of developing countries.

Given the current position of developing countries, most of the global adjustment would have to take place in the current account positions of other industrial countries. In 1985 the surpluses of Japan, Germany and three other European countries, -- shown in Exhibit 5

-- will probably sum to about half the projected U.S. deficit. A sharp reduction or elimination of the U.S. deficit would entail moving the current accounts of some of these countries significantly into deficit. Such declines in net exports would have substantial negative impacts on the economies of a number of countries. To achieve this adjustment without a significant reduction in the growth of GNP, these countries would have to respond by lowering interest rates or adopting more expansionary fiscal policies, as we have assumed they would.

The implications of a reversal of the U.S. current account deficit for the U.S. domestic economy, to be discussed by Mr. Stockton, would depend in part on its implications for the sectoral composition of U.S. trade flows. The three panels of Exhibit 6 show historical movements in U.S. real net exports of finished manufactured goods, industrial supplies and materials and food and agricultural products. A downturn since 1980 is evident in all three sectors. In absolute terms, the largest drop by far has been in the finished manufactured goods sector, although as a proportion of domestic output, the decline has been even greater in the agricultural sector. A number of factors have contributed to these declines in net exports, but the rise in the dollar over this period appears to have been the most important proximate cause. A reversal of the dollar's appreciation clearly would improve our net export performance in all three areas, with the largest absolute change coming in the manufacturing sector.

D. Stockton
October 31, 1985

In this section, I will discuss the adjustments required of the domestic economy in response to a drop in the dollar and the approximate magnitudes of these adjustments, both in absolute terms and relative to previous historical experience. Exhibit 7 presents a hypothetical example designed to illustrate the dimensions of the adjustments in the composition of real demands on domestic production that would accompany elimination of the current account deficit. Although the adjustments would be smaller if the deficit were not fully eliminated, any substantial move towards balance would require significant changes in existing patterns of domestic demands.

I should note that the table calculates changes in terms of the composition of current real GNP—line 1—in an effort to clarify the shifts in resource use involved. However, the actual adjustment would likely occur over several years. Thus, the percentage change figures shown in the third column should be interpreted as reflecting shifts in the level of domestic demands relative to what otherwise would occur, whether economic activity was unchanged, growing fast or growing slowly.

Turning first to the external sector, a depreciation of the dollar stimulates real net exports--line 4 in the table—by improving the price competitiveness of U.S. producers. However, prices of imports and exports are not likely to change by the full extent of the depreciation. In order to calculate the effect on real net exports of eliminating the current account deficit, it is assumed--consistent with historical experience--that foreign exporters absorb roughly half of the drop in the dollar by reducing their profit margins. At the same time, U.S. firms take the opportunity to raise somewhat the profit margins on their foreign

sales, although the bulk of the depreciation will likely be reflected in lower foreign currency prices for U.S. exports. The accompanying decline in the volume of imports and rise in the volume of exports is estimated to increase real net exports by about $77 billion.

As shown on line 2, such an expansion of real net exports requires an offsetting reduction in gross domestic purchases—the sum of consumption, investment, and government purchases--of about 4-1/2 percent if the path of GNP is to be unchanged from what it otherwise would have been. Furthermore, if government purchases are not lowered, the decline must occur exclusively among private domestic purchases—line 3--which would drop 5-1/2 percent. It is implausible to expect the current account deficit to be eliminated in a single year. If it is assumed that balance is achieved over a period of three years, as Mr. Hooper indicated was possible, then it would be necessary for real domestic purchases to grow, on average, about 1-1/2 percentage points per year less than production.

Although the magnitude of this adjustment of domestic demands relative to production is the same whether the economy is operating below full capacity or near its potential, the characteristics of the adjustment process are likely to differ depending on existing economic conditions. With substantial excess capacity, the production of traded goods can expand with substantially less upward wage and price pressures because resources are readily available to meet the increased demand. In contrast, for an economy close to potential output, the redirection of resources towards the traded goods sector may generate much greater pressure on wages and prices, as it will be necessary for resources to be bid away from current employment in the production of nontraded goods.

The upper panel of exhibit 8 places the magnitude of a three-year adjustment to current account balance in some historical perspective. Annual growth rates of real GNP—the black line—and real gross domestic purchases--the red line--are plotted in the chart, assuming that GNP growth averages 3 percent at an annual rate over the next three years. Nearly all previous periods during which purchases grew less than production—shown by the red shading—were associated with recessions. An adjustment of the magnitude and duration depicted in this panel, or even one somewhat smaller, would be unprecedented in a period of economic expansion and suggests there may be considerable tensions created in achieving the necessary suppression of domestic demands.

Accompanying the expansion of net exports and the decline in domestic purchases will be a shift in the composition of production. A disproportionate share of traded goods are produced in the manufacturing sector. As a consequence, the shift in production towards traded goods and away from nontraded goods will lead to an expansion of foreign demands in the manufacturing sector. This increase will most likely only be partially offset by a reduction of domestic demands on manufacturing, because a large share of the crowding out of domestic demands will occur outside of the manufacturing sector. Assuming growth in manufacturing capacity at about a 3 percent annual rate—the long run trend—the expected shift in the composition of production towards traded goods could be expected to boost the manufacturing capacity utilization rate 4-1/2 percentage points during the adjustment process. As shown by the red line in the lower panel of exhibit 8, starting from where we are now, the manufacturing utilization rate would rise to 84-1/2 percent.

Of course, capacity growth could be greater or less than the assumed 3 percent annual rate, even with GNP growth unchanged, depending on the relative importance of two opposing effects. Increased relative prices in the manufacturing sector should act to boost profitability and encourage investment in that sector. In opposition, the higher interest rates resulting from the depreciation are likely to damp demands for investment in new capacity. The shaded area in the lower panel represents manufacturing capacity utilization rates that would occur with annual rates of capacity growth between 2-1/2 percent--shown as the upper black line--and 3-1/2 percent--the lower black line. Levels of capacity utilization in the upper half of this range would likely generate persistent upward pressure on prices in the manufacturing sector.

Finally, additional risks would arise if domestic demands on the manufacturing sector are not reduced as foreign demands are expanded. A rapid expansion of demands from abroad could temporarily lift the manufacturing capacity utilization rate above 90 percent if domestic demands were unaltered. Capacity utilization at this level would almost certainly imply production bottlenecks in some sectors.

Elimination of the current account deficit also has an important influence on the availability of saving needed to finance both private investment and the federal budget deficit. The first column of exhibit 9 presents our current estimate of the sources and uses of saving. In the second column a hypothetical example is developed in which it is assumed that the current account is brought into balance, thus eliminating net foreign investment--line 4--as a source of saving. If the federal

government's demands on saving were unchanged—line 2—the decline in investment by foreigners would have to be met by some combination of a reduction in private domestic investment and an expansion of domestic saving. Based on statistical analysis of historical relationships, the higher interest rates generated by a dollar depreciation could depress net private investment--line 1 in the table--and boost domestic saving---line 3--by roughly equal amounts. As a result, personal saving as a percent of disposable income--shown in line 5--could rise from its 4 percent average level in 1985 to about 6-1/2 percent. I should mention that, if the economy were operating substantially below its full potential, sustainable economic growth would constitute an additional source of saving to offset diminished capital inflows from abroad.

The chart in the lower panel of exhibit 9 places the projected behavior of saving in some historical perspective. It is again assumed, for purposes of illustration, that the current account is brought into balance over a period of three years. Although the personal saving rate—shown as the red line in the chart--would not be at an historical high, a 2-1/2 percentage point rise would be a significant increase for a period of economic expansion. The black line plots net domestic nonfederal saving, which includes undistributed corporate profits and state and local government surpluses, in addition to personal saving. As a percent of GNP, it would climb to nearly 9-1/2 percent over the period, reaching a postwar high. Of course, historical relationships may not prove to be an accurate guide to future behavior. A failure to generate an increase in saving of the quantity depicted in exhibit 9 would lead to greater pressures on interest

rates and thus further crowding out of investment expenditures. It should be stressed, however, that significant progress towards reduction of the federal budget deficit would ease substantially the burden of adjustment on the private sector and lessen the strains attendant in this process.

Mr. Slifman will now discuss the process of adjustment that would occur over time.

L. Slifman
October 31, 1985

In this section we will contrast possible responses in the economy over time to a gradual depreciation and to a rapid depreciation. In general, a rapid fall in the dollar would necessitate the more extreme shifts in resources and patterns of saving and investment that Mr. Stockton indicated.

As a benchmark, exhibit 10 lays out an illustrative path for key economic variables on the assumption of a 5 percent annual drop in the dollar beginning next year. Because our purpose is to contrast the economic effects of alternative exchange rate movements, we have assumed at this point a monetary policy that is--so to speak--neutral, with money growth (abstracting from demand shifts) constant from year to year. By setting aside the question of the policy adjustments needed to reduce unemployment or inflation significantly further, this policy assumption allows us to highlight exchange rate impacts. In terms of fiscal policy, we have assumed a narrowing of the structural budget deficit by about $60 billion during the projection period, reflecting the spending objectives of the latest Congressional budget resolution. This assumption differs the one used in Mr. Stockton's tables, where the structural deficit was held constant.

Given these policy assumptions, real GNP is assumed to rise about 2-3/4 percent annually; but growth could be faster if our long-term productivity performance were to improve. The critical element, though, is that throughout the five-year horizon growth of domestic purchases would have to be suppressed relative to the growth of real GNP. In effect, a substantial move toward external balance requires that we give up some of the excess growth in the standard of living we enjoyed during

the period of appreciation from 1980 to 1985. At the same time, inflation is projected to pick up as a result of increases in the prices of traded goods. Nominal interest rates begin to rise after 1986; but the rise is quite modest reflecting our assumed narrowing of the structural deficit. If the budget deficit were not reduced, however, interest pressures would be even higher.

The effects of a more rapid depreciation--assuming the same monetary and fiscal policies--are illustrated in red in the next exhibit. These alternative projections are based on a judgmental interpretation of the results from the staff's quarterly econometric model of the U.S. economy and our multi-country model.

Focusing on the upper panels, the models suggest that a faster drop in the dollar would require an even greater suppression of domestic purchases over the projection period. During 1986, the stimulus to domestic production arising from an increased demand for traded goods would be about offset by reduced growth of domestic purchases, with little net effect on GNP growth, shown in the upper left panel. By 1987, however, the continued rapid improvement in our trade balance would be expected to provide a sizable boost to GNP. However, growth of domestic demand--the upper right panel--would remain depressed. This would be accomplished, as indicated in the lower left panel, at the cost of faster price increases and a sharp rise in interest rates (the lower right panel). The models suggest that over time the contractionary effects of higher inflation and interest rates would begin to play a larger role, and the growth of real GNP would become depressed for a while.

The necessary reductions in domestic demand weigh most heavily on the interest-sensitive sectors of the economy. This is illustrated in

exhibit 12. Hardest hit would probably be the housing sector--the upper left panel. Business fixed investment--especially for new structures such as office buildings and stores--also would be sensitive to the higher interest rates.

In the consumer sector--the lower panels--the initial rise in borrowing costs, and the reduction in the value of household financial assets associated with higher interest rates, would have retarding effects on purchases of durable goods. In addition, because prices tend to be more flexible than wages in the short run, a drop in the exchange rate restrains real wage growth and boosts profits. This could act as an additional influence depressing consumption. All of these factors would tend to boost the saving rate. However, once households have adapted their level of spending to the new lower levels of real income and wealth, the growth of consumption would be expected to pick up.

The preceding two exhibits have illustrated the dimensions of the macroeconomic adjustments that would likely occur if the dollar were to depreciate rapidly. These projections are based on average historical relationships, which implicitly assume that the underlying micro-economic adjustments needed to redirect resources could be made relatively smoothly. Even so, as you can see, a sharp depreciation of the dollar entails considerable distortions and disturbances in the behavior of key variables. Clearly, significant risks and uncertainties would arise if the economy were subjected to a large exogenous depreciation shock, and there could well be disruptions at the microeconomic level that would lead to larger and even more volatile macroeconomic adjustments than we have shown on the charts.

A number of these risks are summarized in the next exhibit. A major problem is whether it would be physically possible to reallocate quickly the resources needed to accommodate the shift in the composition of output toward the traded goods sector. If not, the result could be bottlenecks, constraints and materials shortages in some specific industries, as well as the emergence of labor market shortages for certain skills or in particular geographic locations. In addition, a sharp rise in capacity utilization rates, with associated bottlenecks and constraints, also could occur if less domestic demand were to be crowded out than our models are showing. If such constraints or shortages were to develop, they could have adverse effects on prices and price expectations that would impede the adjustment process.

Another major risk is the possibility that developments in credit markets associated with rapid depreciation might generate a recession. if domestic demand is extremely sensitive to the rise in interest rates. The negative effects of rising interest rates could, in fact, be relatively strong under current circumstances because of the particularly sensitive position of many depository institutions. Borrowers--especially households, who have sustained spending recently through a rapid build-up in debt and and a consequent reduction in the personal saving rate--also could be quite sensitive to credit market conditions. As a result, significant interest rate increases may lead to unusually large cutbacks in lending and borrowing activity. Indeed, these negative financial market effects could well be strong enough to offset the positive effects on activity of a decline in the dollar.

Mr. Axilrod will now discuss the policy implications of these risks.

Concluding remarks

The balancing of recessionary and inflationary risks that are involved in the process by which the economy adjusts to a drop in the dollar, particularly to a very sharp and rapid decline, poses difficult judgmental issues for monetary policy. With regard, first, to the risks of recession, under present circumstances given the possibility of unusually adverse institutional and borrower reactions to significant interest rate increases, an accommodative policy that holds rates down and accelerates money growth for a while might be considered for purposes of averting a significant weakening in economic activity. Such an approach would, however, raise the odds that inflationary pressures would be unduly encouraged as the added expansionary effect of a sharp depreciation of the dollar is not offset by an effort to squeeze out purely domestic demands on capacity.

Of course one can debate exactly how tight resource availability is at present, and thus how much scope there would be to expand output in face of a falling dollar without undue inflationary risk. An unemployment rate near 7 percent and manufacturing capacity utilization around 80 percent probably leaves some room for real GNP growth above potential without that growth itself triggering a significant rise in inflationary expectations, but as Mr. Stockton's presentation makes clear whatever margin of unused resources there is would be rather quickly eroded by the added resource needs for export and import-competing industries. As that happens wage and price pressures would tend to be generated on top of the inflationary pressures directly related to the exchange rate induced rise in import prices. Under those circumstances, inflationary expectations would be likely to rise, and a return to slower money growth consistent with reasonable price stability over time would then entail very considerable costs in unemployment and financial disruption.

Since a policy of initial monetary accommodation to limit the risk of recession in the short run may involve a substantial inflationary potential and the likelihood of a later recession, one might as an alternative consider a restrictive policy approach that takes the risks of weakness in economic activity sooner but minimizes the potential for inflation--on the grounds that such a policy approach would be less costly over the longer run. Such a policy of lowering money growth, at least by a little and for a while, and thereby exerting more upward pressure on interest rates initially could under present circumstances rather promptly weaken the economy. However, inflation and inflationary expectations would remain subdued. In addition, lower income growth would work to hold down imports. Such a rather "classical" method of reducing trade deficits by lowering domestic demand would moderate downward pressures on the exchange value of the dollar.

The FOMC of course does not necessarily have to prejudge whether policy should be tilted in one direction or another in light of the various risks. An intermediate approach that keeps monetary policy unchanged (as indexed by money targets no different from what they otherwise would be) in the face of a sharp drop in the dollar can be viewed as weighting equally the risks of recession or inflation and letting the degree of interest rate pressure that emerges from market forces serve as the balance wheel. Policy could be shaded to the more accommodative or restrictive sides as market and economic responses to a sharp drop in the dollar evolve.

Basically, however, I suspect that there is little chance of a very satisfactory economic outcome to a sharp drop in the dollar under current circumstances, no matter how well tuned is monetary policy. We would be very likely to experience inflation or recession or possibly both. Substantial real adjustments in the balance of domestic saving and investment

and in resource reallocation of the magnitude required by a closer balance in our international position probably cannot be accomplished in an orderly fashion in a relatively short period of time, given rigidities in the economy and lags in response rates to changes in relative prices.

Attempts to achieve those large real adjustments quickly would probably entail considerable upward wage and price pressures, which would in themselves work to erode the real effect on our international competitiveness of any given nominal decline in the exchange rate, with the potential then for an even larger drop in nominal terms. At the same time, economic activity probably could not be adequately sustained in face of the relatively substantial rise of interest rates that may be needed to squeeze out domestic demand in the process, given the comparative fragility of domestic and world financial conditions, including debt burdens of borrowers and the balance sheet position of financial institutions. Finally, significant cuts in the federal budget deficit are not assured, and those cuts can make a more direct contribution than monetary policy to the real adjustments in the balance of saving and investment and real resource availability that are needed as the current account returns nearer to balance. But even if cuts were assured, they would take place over an extended period, and would be of little immediate help, except possibly through expectational effects.

It is, therefore, at least in my view--and absent a miracle of fiscal restraint or a considerably weaker economy than now envisaged--desirable to avert a sharp decline in the dollar. On the other hand, it is also desirable to keep the dollar from being excessively high because of the risks involved in postponing the adjustment process. If postponed unduly, the subsequent dollar decline may be extremely large and economic adjustments may occur at a time when domestic resources are even more highly

utilized than at present, when upward price expectations may be less subdued, and when needed plant capacity and labor skills for internationally-competitive industries have rusted further from disuse. That leaves a gradual downward adjustment in the dollar, particularly as it is accompanied by increasing fiscal restraint over time, as having the best odds for promoting an orderly process of economic adjustment.